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document Cloning the entanglement of a pair of quantum bits

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abstract It is shown that any quantum operation that perfectly clones the entanglement of all maximally-entangled qubit pairs cannot preserve separability. This "entanglement no-cloning" principle naturally suggests that some approximate cloning of entanglement is nevertheless allowed by quantum mechanics. We investigate a separability-preserving optimal cloning machine that duplicates all maximally-entangled states of two qubits, resulting in 0.285 bits of entanglement per clone, while a local cloning machine only yields 0.060 bits of entanglement per clone.